A business data processing curriculum for community colleges

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A business data processing curriculum must, of necessity, be both dynamic and flexible. We must constantly be seeking to fulfill the needs of industry in our environs. LaGuardia Community College is located in New York City, which is probably the largest marketplace for business applications programmers in the world. Because LaGuardia is situated in the center of commerce, it was decided, when setting up the college, to make cooperative education the key thrust of the institution. The Cooperative Education Plan offers the student the opportunity to combine classroom learning with practical work experience. It is designed to help students determine and explore their own individual goals and, in general, to help them develop increased knowledge and skills in their major field of study, explore different career possibilities, and obtain experiences which will promote educational as well as personal growth.

Built into the structure of the college, cooperative education helps keep the college in touch with developments outside of it. Identifying work internships and placing students on various jobs attunes the college to changing needs in terms of career opportunities and related curricula. LaGuardia operates on a year-round quarter system. Full-time students spend their first two quarters studying on campus and then begin to alternate off-campus internship terms with on-campus study terms. In the course of the basic two-year program, a student will take five study quarters and three work internship quarters.

The paid work internships in many ways are also academic experiences because they allow the student to practice in the “real world” what they have learned in the classroom. Since the students are alternating work with study, there is a constant feedback between the students on the work internship and the instructors in the classroom. The feedback is largely in the area of modification of course content in the data processing area, so as to encompass all of the latest innovations in the industry. We find that the students are very perceptive and wish to share the knowledge which they gain on the job with their fellow students and, of course, with their instructors. This knowledge is generally in the areas that are unique to the applications that they are working with. Some students may be working in banking, some in insurance, some in retailing, and some in manufacturing, etc.

These work-study jobs are developed by a dedicated cadre of cooperative education placement personnel in conjunction with the members of the data processing faculty, serving as technical liaison. Since we know the types of jobs that our students will undertake, both in their cooperative internships and also upon their graduation, we are able to tailor our curriculum and course content to the needs of the business data processing community. Because of the diversity of the marketplace, we feel that our curriculum will prepare our students to find jobs in the EDP field in all areas throughout the country.

Our curriculum, as it now stands, begins with an “Introduction to Data Processing” course taken during the student’s first quarter in residence at the college. This course, which is business-oriented, includes such topics as: the history of EDP; a brief introduction to the punched-card and unit-record equipment; an introduction to electronic computer theory and numbering systems; analysis and flowcharting; and programming languages. In order to “turn the students on” to computers, we utilize the interactive BASIC language.

The hardware which we utilize in the introductory course is the Data General Nova 1200 with six (6) ASR33 Teletype terminals. These six terminals support five sections of about thirty students each, or roughly 150 students in our “Intro” course.

The second course that we introduce the students to is called “Basic COBOL Programming.” We chose COBOL because most studies in the past two years (including our own) had shown that this language is used by at least 60 percent of the EDP installations in the greater metropolitan area of New York. We use behavioral objectives in teaching our EDP courses at LaGuardia. We set up goals for each student, so that they may ascertain their own mastery of the course. Students’ grades are based on the number of programs that they complete. Evaluation of the levels of attainment aids both the faculty and the cooperative education coordinators in work internship placement.

During the third study quarter, we offer a course in “Advanced COBOL Programming” which covers
advanced applications of COBOL, such as nested loops, multi-dimensional table handling, and processing of disk and tape files. We examine various types of file management techniques and the student analyzes, flowcharts, codes, debugs, and documents many interesting programs. The advanced COBOL course is taken in conjunction with a course in "Systems Design and Analysis" that further advances the student toward the goal of becoming a constructive and useful member of the data processing community.

When the student returns for the fourth study quarter, he or she may take a course in "Operating Systems" and either "RPG Programming" or "Basic Assembler Language" (BAL). During the final study quarter, the student may opt for either PL/1 or FORTRAN, depending on their prospective employer's recommendations.

The sequence of courses during the last three quarters is generally influenced by the cooperative employer's needs. There is a constant series of contacts being made between students, instructors, and coop employers throughout the student's stay at LaGuardia. This team effort is the fulcrum around which everything revolves. We believe that the evolutionary business data processing curriculum at LaGuardia, which is constantly being re-evaluated by the very nature of the cooperative education program, could become a model for other community colleges throughout the nation.